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Application of Epstein–Barr virus for optimization of immortalized B-lymphocyte production as a positive control in genetic studies

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Background: Infection of B-cells with Epstein–Barr virus (EBV) leads to more and subsequent immortalization. This is considered as the method of choice for generating lymphoblastoids cell lines (LCLs). Producing LCLs, although very useful but is very time consuming and troublesome, drives the requirement for quicker and more reliable methods for EBV-driven B-cell transformation.

Materials and Methods: After successfully production of LCLs, different parameters including temperature, serum concentration, type of culture medium, and CO_2 concentration were evaluated on EBV-transformed B-cells. In this study, we were able to produce LCLs and optimize condition.

Results: The best condition for generating LCLs was 37°C, 5% CO_2, 20% fasting blood sugar, and RPMI 1640. The study results were to establish a reliable method for producing LCLs that can be used to produce immortalized B-cells from almost any sources.

Conclusion: This can help with tumorgenecity studies, as well as producing control material for rare genetic disorders and so on. The aim of this study was to determine optimized condition for reliable and reproducible LCLs from different sources.

Key Words: *B95 cell, Epstein–Barr virus, immortalization, lymphoblastoids cell line, optimization*